

09-08-00

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PATENT

Docket No. IL-10518

Commissioner for Patents
Washington, DC 20231

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of Inventor(s):
Francine A. Alford, David L. Brinkerhoff

For (title): **A METHOD AND SYSTEM OF INTEGRATING INFORMATION FROM MULTIPLE SOURCES**

1. Type of Application

- ☒ This new application is for an original patent.
- ☐ This new application is a:
 - ☐ Division
 - ☐ Continuation
 - ☐ Continuation-in-part (CIP)

2. Benefit of Prior U.S. Application(s) (35 USC 120)

- ☐ The new application being transmitted claims the benefit of prior U.S. application(s).
 - ☐ Group/Art Unit:
 - ☐ Examiner of Prior Application:

3. ☒ Benefit under 35 U.S.C. 119(e) of United States provisional application(s) listed below:

<u>60/153,099</u>	<u>9/9/99</u>
Application Serial No.	Filing Date

4. Papers enclosed which are required for filing Date Under 37 CFR 1.53(b).

24 Pages of specification, including
Claims, Abstract and Title Page

5 Sheets of drawings

5. Additional papers enclosed

- ☐ Preliminary Amendment
- ☒ Express Mail Certificate
- ☒ Return Postcard

6. Declaration or oath

- ☒ Enclosed and executed by
 - ☒ Inventors
 - ☐ legal representative of inventor(s) 37 CFR 1.42 or 1.43
- ☐ Not Enclosed

7. Assignment

- ☒ An assignment of the invention to The Regents of the University of California.
 - ☒ is attached
 - ☐ will follow

8. Certified Copy

Certified copy(ies) of application(s)

(country)	(application no.)	(filed)
(country)	(application no.)	(filed)

from which priority is claimed

- ☐ is(are) attached.
- ☐ will follow

9. Fee Calculation

CLAIMS AS FILED					
Type of Claim	Number Filed	Included in Basic Fee	Number Extra	Rate	Total Fee
Total Claims	30	-20 =	10 x	\$18 =	\$ 180.00
Independent Claims	8	-3 =	5 x	\$78 =	\$ 390.00
				Multiple Claims =	\$ 570.00
				Basic Filing Fee =	\$ 690.00
				Sub-Total =	\$ 1260.00
				Small Entity Filing Fee =	\$ 630.00

10. **Small Entity Statement(s)**

- ☒ Verified Statement that this is a filing by small entity under 37 CFR 1.9 and 1.27 is attached.
- ☐ Copy of Verified Statement that this is a filing by small entity under 37 CFR 1.9 and 1.27 filed in prior application. Status still proper and desired.

11. **Fee Payment**

- ☐ Not Enclosed
- ☒ Enclosed (See Charge Account Information Below)

Total Basic Filing Fees To Be Paid \$ 630.00

12. **Method of Payment of Fees**

- ☐ Check in the Amount of \$ _____
- ☒ Charge Account No. 12-0695 in the amount of \$ 630.00
A duplicate of this transmittal is attached.

13. **Instructions As To Overpayment/Underpayment**

- ☒ credit/charge
Account No. 12-0695
- ☐ refund

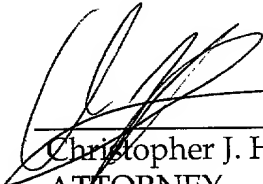
14. **Correspondence Address**

Christopher J. Horgan
ATTORNEY
P.O. Box 808, L-703, Livermore, CA 94551
USA

Tel: (925) 423-8554
Fax: (925) 423-2231

Reg No.: 40,394

Date: 9/7/00



Christopher J. Horgan
ATTORNEY
P.O. Box 808, L-703
Livermore, CA 94551

Applicant	:	Francine A. Alford et al.	Docket No.	:	IL-10518
Serial No.	:		Art Unit	:	
Filed	:		Batch No.	:	
For	:	A METHOD AND SYSTEM OF INTEGRATING INFORMATION FROM MULTIPLE SOURCES	Examiner	:	

I hereby declare that I am an official empowered to act on behalf of the nonprofit organization identified below:

TYPE OF ORGANIZATION

 X University or other Institute of Higher Education

I hereby declare that the nonprofit organization identified above qualifies as a nonprofit organization as defined in 37 CFR 1.9(e) for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code with regard to the invention entitled **A METHOD AND SYSTEM OF INTEGRATING INFORMATION FROM MULTIPLE SOURCES**

by inventor(s) Francine A. Alford and David L. Brinkerhoff

described in

X the specification filed herewith.

_____ application serial no. _____, filed _____.

_____ patent no. _____ issued _____.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Francine A. Alford et al.
Serial No. :

Attorney Docket No. : IL-10518
Art Unit:

Filed :

Examiner:

For : **A METHOD AND SYSTEM OF INTEGRATING INFORMATION
FROM MULTIPLE SOURCES**

Commissioner for Patents
Washington, D.C. 20231

EXPRESS MAIL CERTIFICATE

"Express Mail" label number EL33019961US

Date of Deposit 9/7/00

I hereby certify that the following *attached*

1. Recordation Cover Sheet w/ Assignment
2. New Application Transmittal (in duplicate)
3. Verified Statement Claiming Small Entity Status
4. Application
(Specification 15 pages, Claims 7 pages, Abstract 1 page)
Combined Declaration and Power of Attorney
Five (5) sheets of formal drawings;
5. Express Mail Certificate
6. Return postcard

is being deposited with the United States Postal Service "Express Mail Post Office to addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Commissioner for Patents, Box: Patent Application, Washington, D.C. 20231.

Kathy E. Raymond

(Type or print name of person mailing paper)

Kathy E. Raymond

(Signature of person mailing paper or fee)

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IL- 10321

A METHOD AND SYSTEM OF INTEGRATING
INFORMATION FROM MULTIPLE SOURCES

BY

Francine A. Alford (USA)
2455 Wood Hollow Drive
Livermore, CA 94550

David L. Brinkerhoff (USA)
4315 Hillcrest Avenue
Antioch, CA 94509

002050-48495950

A METHOD AND SYSTEM OF INTEGRATING
INFORMATION FROM MULTIPLE SOURCES

Applicants claim priority to U.S. Provisional Application 60/153,099 filed on September 9, 1999 and assigned to The Regents of the University of California.

5 The United States Government has rights in this invention pursuant to Contract No. W-7405-ENG-48 between the United States Department of Energy and the University of California for the operation of Lawrence Livermore National Laboratory.

FIELD OF THE INVENTION

10 The invention relates generally to information systems and, more specifically, the invention relates to a system and method for integrating information from multiple source locations.

BACKGROUND OF THE INVENTION

15 The data processing resources of large organizations are increasingly taking the form of a client/server or distributed computing environment (DBE) in which data and processing are dispersed over a network comprising many heterogeneous and geographically remote servers and databases. Many of these servers and databases are programmed in a different variety of computing languages and cannot communicate properly.

SUMMARY OF THE INVENTION

20 Aspects of the invention include a system comprising a first application system containing a first set of data; a second application system

containing a second set of data; a first server coupled to the first and second application system; a central repository coupled to the server and capable of integrating the first and second sets of data to form a central repository set of data; and wherein the first and second databases are programmed in a first format and
5 the central repository is programmed in a second format.

Aspects of the invention include a method comprising: creating a first set of data in a first application system; creating a second set of data in a second application system; passing said first and second sets of data to a first server which is configured to run an object broker; passing said first and second sets of data from
10 said first server to a central repository; and integrating said first and second sets of data in the central repository database to form a central repository set of data.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated into and form a part of the disclosure,

Figure 1 is a schematic representation in block diagram form of
15 information flow within a procurement system using a World Wide Web based system;

Figure 2 is a schematic representation of the procurement system of Figure 1; and

Figures 3A-3C are a schematic representation in block diagram form of
20 a method of operation of a procurement system of Figure 1.

DETAILED DESCRIPTION OF THE INVENTION

The following description will focus on embodiments which operate in a network environment executing document centric-application systems. The disclosed embodiments are not limited to any particular application or environment. Instead, those skilled in the art will find that the disclosed embodiments may be used advantageously applied to any application or environment where integration of disparate sources of document data is desirable. The description of the exemplary embodiments which follows is, therefore, for the purpose of illustration and not limitation.

Figure 1 is a schematic representation in block diagram form of information flow within a procurement system 10 using communication protocols based on the World Wide Web (i.e., a Web-based system). Figure 1 is an example of how the document centric-application system 100 of Figure 2 may be used to integrate information from multiple sources within the procurement system 10. A job may be designed or the specifications created in a product data management module 12. A job may be a product, system or service. The job specifications may be a high order of complexity and contain information in the form of text and graphics (e.g., drawings). The job specifications may then be forwarded through a network (either local or global) to a knowledge management module 22 containing a central repository database 22a. The knowledge management module 22 may then forward the job specifications to a requisition application system 14 where an initial online requisition system

(OLR) order (or job order) may be manually (or automatically) created by an operator (e.g., procurement agent) at a user interface to the procurement system and sent back to the knowledge management module 22. A job order will be created in the central database 22a of the knowledge management module 22.

5 Simultaneously to forwarding the job specifications to the knowledge management module 22, requests for job specifications and other document attachments may be forwarded from product data management application system 12 throughout the network to a variety of different application systems (or data storage modules) 16 (e.g., engineering records center, vendor
10 authorization center, etc.) to collect further procurement information such as drawings, etc. The job order from the requisition application system 14 and information from application systems 12 and 16 will be integrated in the knowledge management module 22 and stored in a job order record or folder in the central repository 22a. The knowledge management module 22 is also
15 configured to display the job order on a website so that it may be accessed through the network or externally over the Internet. Approved vendors 24 may access the central repository 22a through the website to obtain the job order and, in return, place a quote or bid. The knowledge management module 22 may be configured to gather bids by vendors and forward them to the requisition
20 application system 14. After a vendor is awarded the job, the vendor authorization application system 26 may be notified and a purchase order sent to a designated vendor. The procurement system 10 may be designed to allow the

continuous updating of the central repository 22a by the application systems 12, 14, 16 and 26 as the bid process progresses in an efficient manner. Also, since the application systems 12, 14, 16 and 26 may run separately from the knowledge management module 22, in the event the knowledge management module 22 is disabled, the application systems 12, 14, 16 and 26 are still capable of functioning independently.

Figure 2 illustrates the relationship between a plurality of elements in a document centric-application system 100. The servers and clients of the document centric-application system 100 are connected via an enterprise communication network 100a. The enterprise communication network 100a may be a global communications network with system elements located throughout the world or, alternatively, a local area network (LAN), such as a token-ring network or an Ethernet network. An enterprise server 101 may be configured to operate the enterprise communication network 100a. Vendors 104 may access the enterprise server 101 through the Internet 105. An authentication procedure 106 prevents unauthorized access to the enterprise communications network 100a and webserver 107. Webserver 107 stores the programming codes necessary to create a webpage to which the vendors 104 may access to obtain integrated job order information. The webserver 107 will obtain integrated job order information content from a central repository 140 through a central repository application programming interface (API) 132 which will be discussed below.

First, second, third and fourth application systems (each with an accompanying database and database server) 112, 114, 116, and 118 contain information which is required by the knowledge management program which is stored on a server associated with the central repository database 140.

5 Throughout the disclosure, the term server will be used to indicate hardware, software code or a combination which provide a response to requests for services from other components or applications. The databases of the application systems 112, 114, 116 and 118 may be implemented using standard System Query Language (SQL)-type relational databases such as those provided by Oracle
10 Corporation. The information (e.g., computer files) in the application systems 112, 114, 116, and 118 will take the form of text, graphic data (e.g., from a CAD/CAM system), or scanned images. The knowledge management program may be a collaborative environment software product such as Livelink® from Open Text Corporation. For the purposes of this discussion, the knowledge
15 management program will also be known as the central repository database management software. The central repository database management software will be configured to integrate the information provided by the system and method of the disclosed embodiments from the first, second, third and fourth application systems 112, 114, 116 and 118 and supply it to vendors 104.

20 Although four application systems 112, 114, 116 and 118 are being shown in Figure 1 for example purposes, it is to be understood that the system described herein is scaleable and the number of application systems might be greater (or

lesser) depending on the number of disparate sources that are required to be integrated.

User interface 118a will allow job specifications to be entered into a product data management application system 118. These job specifications may be forwarded from the product data management application system 118 through the communications network 110a (and optionally through the central repository 140) to a first application system 112. First application system 112 may be a requisition application system. A procurement agent may manually (or automatically) enter the forwarded job specifications into an online order entry system located in first application system 112 to create a job order. The online order entry system or requisition application system 112 may be a web-based application and is therefore Transmission Control Protocol/Internet Protocol (TCP/IP) compliant. The first application system 112 is designed to store the job order and any job specification updates and to provide this information to central repository server 140.

Second, third and fourth application systems 114, 116 and 118 are configured to provide a wide variety of procurement information to central repository 140. For example, second application system 114 may be a procurement system that will provide information such as eligible vendors, predetermined vendor information, and purchase order information to central repository server 140. Third application system 116 may be an engineering records system that will provide drawings and other information to the central

repository server 140. Fourth application system 118 may run a product data management software program that provides job specifications.

First, second and third command servers 108, 126 and 128 are shown in the schematic of Figure 2 as being located functionally between the application systems 112, 114, 116 and 118 and the central repository server 140. For exemplary purposes, first command server 108 may be software code located on the server associated with application system 112, second command server 126 may be software code located on the server associated with application system 116, and third command server 128 may be software code located on the server associated with application system 118. However, it is to be understood that in alternative embodiments servers 108, 126 and 128 may be separate processes running on the same machine, may be remotely located on separate machines in other parts of the enterprise communications network 100a, or a combination of both. Further, multiple command servers may be used depending on volume demand and the location of required procurement information.

First command server 108 is configured to broker information requests from central repository 140 and other various applications on the network 100a through a well-known computer technology called object-oriented programming (OOP) which allows a client and server to be located on different (heterogeneous) "platforms". An object is a self-contained module of data and its associated processing and a platform is a combination of the specific hardware/software/operating system/communication protocol which a

machine uses to do its work. OOP allows the client application program and server application program to operate on their own platforms without requiring knowledge of how the client application's work requests will be communicated and accepted by the server application. Likewise, the server does not require knowledge of how the OOP system will receive, translate and send the server application's processing results back to the requesting client application. The Object Management Group (OMG), which is an international consortium of organizations involved in various aspects of computing on client/server computing on heterogenous platforms, has set forth published standards by which clients communicate (in OOP form) with servers. As part of these standards, an Object Request Broker (ORB™) has been defined (known as the Common Object Request Broker Architecture, or CORBA® for short) which provides an object-oriented bridge between the client and the server. In the disclosed embodiments, the command servers 108, 126 and 128 and administrator server 110 are object request brokers. CORBA® standards are discussed in CORBA: Architecture and Specification (OMG, 1998), which is hereby incorporated by reference. The interoperability of CORBA® allows an object request broker such as first command server 108 to exchange requests from applications and objects across the communications network 100a.

In the embodiment disclosed herein, first, second and third command servers 108, 126 and 128 and administrator server 130 may be programmed in an object oriented programming language such as Java® from Sun Microsystems

Corporation. The Java® programming language is intended for usage in networked/distributed environments such as communications network 100.

First command server 108 will utilize published API protocols for Java® to retrieve and supply requested data from application systems 112 and 114 to central repository 140. An API is a set of functions that may be called to perform an action(s). Second and third command servers 126 and 128 will retrieve and supply requested data from application systems 116 and 118, respectively. Residing in command servers 108, 126 and 128 are first, second and third commands tables 120, 122, and 124, respectively. The commands tables 120, 122, and 124 are configured to initiate object requests from remote applications such as requests from the central repository 140. These commands tables may be programmed using database software from Oracle Corporation for example.

In operation, the procurement agent at the user interface 112a creates a job order folder (or requisition folder) in the first application system 112 which will contain a record of the job order. The procurement agent may also periodically during the order process add or delete documents from the job order in the job order folder. The first application system 112 is configured to pass commands and parameters necessary to create and update a corresponding job order folder in central repository 140 to commands table 120. For example, commands entered into the commands table 120 may be instructions to create a folder, as here, and parameters entered into the commands table 120 may include

the folder's name and a path to create a folder. The first command server 108 is designed to periodically poll the commands table 120 and to pass the commands and parameters to the central repository 140 to create a central repository order folder which stores the job order information. After receiving a signal from the central repository 140 that an order folder has been created in the central repository 140, the command server 108 will place a status indication in the commands table 120 and check the commands table 120 to determine if there are any other commands to execute. The command server 108 will continue to periodically poll the commands table 120 to determined any changes to the commands table 120.

First command server 108 is connected to the central repository 140 through a central repository API 132. As previously discussed, the disclosed embodiment implements the first command server 108 in the Java® programming language. The central repository API 132 includes a library of Java® methods which is a set of functions that may be called on to access the central repository 140. The central repository API 132 is connected directly to the central repository 140 and through central repository modules 134 and 136 to the central repository. Modules 134 and 136 may be programmed in the language of the central repository database management software and perform a variety of tasks. For example, central repository module 134 includes a graphics module which is designed to convert the drawings of the job record into several different graphical formats. Vendors 104 are then capable of downloading the drawings

using a variety of graphic software programs from website 107. Central repository module 136 may perform a wide variety of administrative functions.

As previously discussed, first command server 108 is designed to continually poll commands table 120 for updates in the job order record by application system 112. Also, if the central repository 140 and its accompanying software are disabled, the first command server 108 will notify the commands table 120.

Second application system 114 is designed to update commands table 120 with, for example, vendor information and this information will be sent to central repository 140 in a similar manner as the job order record from first application system 112.

Second commands table 122 will be updated by the third application system 116 which may be an engineering records center application. Third application system 116 will supply engineering drawings, etc. to the job order folder created in central repository 140. Second command server 126 will function in a manner similarly to command server 108 except the number of commands available to second command server 126 may be a subset of those available to the commands server 108. Therefore, the third application system 116 may be designed to only have access to commands that are pertinent to its operation. For example, the third application system 116 may not be capable of adding or deleting predetermined information from the central repository database 140. Second command server 126 is designed to continually poll

commands table 122 for updates. Second command server 126 includes the central repository API classes necessary to interface directly with central repository API 132 and pass information to the central repository 140.

Third commands table 124 may be updated by fourth application system 118 which may be a product data management program which will transfer associated product specifications to the job order folder in central depository 140. Third command server 128 also functions in a manner similar to second command server 126, except the range of limited commands available may be different. Third command server 128 continually polls commands table 124 for updates and passes the information to central repository 140.

In the disclosed embodiment, the second and third command servers 126 and 128 are located in proximity to application systems 116 and 118. However, in alternative embodiments, the functions of the command servers 126 and 128 may be incorporated into the functions of the command server 108. An advantage of this design would be to minimize the maintenance of remote servers such as command servers 126 and 128.

Administrator server 110 provides an interface to the status of the command server 108 and command servers 126 and 128. The administrator server 110 is configured to edit and rerun commands and it also supports starting and stopping the command servers 108, 126 and 128. The administrator server 110 executes its commands through an administrator commands table 130 which interacts with commands tables 120, 122 and 124. The administrator

server 110 and commands table 130 may reside on the server associated with the first application system 112 or at another location in the system. The administrator server 110 allows the system integration to continue even if the central repository database management software or one of its components is disabled.

Figure 3 is a schematic representation in block diagram form of a method of operation of the procurement system of Figure 1. In step 302, a procurement agent creates job order in the first application system 112. In step 304, first application system 112 passes commands and parameters to create an order folder to a first commands table 120. In step 306, the command server 108 polls the first commands table 120 and processes commands and parameters to create an order folder. In step 308, the order folder creation information is passed to the central repository 140 using the central repository APIs. In step 310, the central repository 140 creates a job order folder. In step 312, central repository 140 notifies the command servers 108, 126 and 128 that an order folder has been successfully created. In step 314, the first, second and third commands tables 120 are notified that the order folder has been successfully created.

In step 316, a second application system passes vendor information in the form of commands and parameters to the first commands table 120. In step 318, the first command server 108 polls the first commands table 120 and passes the vendor information to the central repository 140. In step 320, the central repository 140, integrates the vendor information with the data in the job order

folder. In step 322, a third application system passes engineering records in the form of commands and parameters to the second commands table 122. In step 324, the second command server polls the second commands table and passes the engineering records to the central repository 140. In step 326, the central repository 140 integrates the engineering records with the data in the job order folder. In step 328, a fourth application system 118 passes product data management information to the third commands table 124. In step 330, the third command server 128 polls the third commands table 124 and passes the product management information to the central repository 140. In step 332, the central repository 140 integrates the product data management information into the job order folder. In step 334, the central repository 140 creates uniform resource locators (URLs) to a bid form and OLR order folder and places URLs on the webpage server 107.

CLAIMS

1. A system comprising:
a first application system including a first set of data;
a second application system including a second set of data;
5 a first server coupled to said first and second application systems;
a central repository coupled to said server and capable of integrating said first and
second sets of data to create a central repository set of data; and
wherein said first and second application systems are programmed in a first
format and said central repository is programmed in a second format.

10 2. The system of claim 1, further comprising:
a first table located between said first and second databases and said first
server and configured to pass commands between said first and second application
systems and said first server.

15 3. The system of claim 2, further comprising:
an administrator server coupled to said first server and configured to
continue operation when the central repository is disabled.

4. The system of claim 2, further comprising:
a third application system including a third set of data;
a second table coupled to said third application system and configured to
20 received commands from said third application system; and
a second server coupled to said second table and configured to receive
commands from said second table.

5. The system of claim 1, wherein said first server is configured to operate in an object oriented programming language.

6. The system of claim 5, wherein said object oriented programming language is Java®.

5 7. The system of claim 1, further comprising:

a web server coupled to said central repository and configured to post uniform resource locators on a network which connect to said central repository set of data.

8. The system of claim 1, wherein said first server is located in a first
10 database in said first application system.

9. The system of claim 3, wherein said administrator server is located in a first database in said first application system.

10. The system of claim 3, further comprising:
an administrator commands table coupled said administrator server and
15 configured to pass commands between said administrator server and said first table.

11. The system of claim 1, further comprising:
a central repository API which is designed to allow the first server to pass said first and second sets of data to said central repository.

12. The system of claim 1, wherein said first application system includes
20 online ordering information and said second application system includes vendor information.

13. The system of claim 4, wherein said third application system includes engineering records.

14. The system of claim 1, wherein said central repository is designed to operate under a central repository database management program.

5 15. The system of claim 14, wherein said central repository database management program is Livelink®.

16. A method comprising:
creating a first set of data in a first application system;
creating a second set of data in a second application system;
10 passing said first and second sets of data to a first server which is configured to run an object broker;
passing said first and second sets of data from said first server to a central repository; and
integrating said first and second sets of data in said central repository
15 database to form a central repository set of data.

17. The method of claim 16, further comprising:
passing from said first application system said first set of data to a first table;
and
passing said first set of data from said first table to said first server.

20 18. The method of claim 16, further comprising:
creating URLs in a webserver which connect to said central repository set of data.

19. The method of claim 16, further comprising:

accessing said central repository set of data from a web server; and

displaying said central repository set of data on a website.

20. The method of claim 16, wherein said central repository API protocols

5 are used to pass said first and second sets of data from said first server to said central repository database.

21. The method of claim 17, wherein said first and second set of data are passed to said first table in the form of a first set of commands and parameters.

22. The method of claim 16, further comprising:

10 passing a third set of data from a third application system to a second server;

passing said third set of data from said second server to said central repository; and

integrating said third set of data with said central repository set of data to modify said central repository set of data.

15 23. The method of claim 22, further comprising:

passing a fourth set of data from a fourth application system to a third server;

passing said fourth set of data from said third server to said central repository; and

20 integrating said fourth set of data with said central repository set of data to modify said central repository set of data.

24. The method of claim 17, further comprising:

polling said first table by said first server.

creating a first set of data in a first application system;
creating a second set of data in a second application system;
passing said first and second sets of data to a first server which is configured
to run an object broker;

5 passing said first and second sets of data from said first server to a central
repository; and

integrating said first and second sets of data in said central repository
database to form a central repository set of data.

28. A computer-readable medium containing instructions for controlling a
10 computer system to integrate information comprising:

creating a first set of data in a first application system;
creating a second set of data in a second application system;
passing said first and second sets of data to a first server which is configured
to run an object broker;

15 passing said first and second sets of data from said first server to a central
repository; and

integrating said first and second sets of data in said central repository
database to form a central repository set of data.

29. A computer-readable data transmission medium containing a data
20 structure comprising:

a first application system including a first set of data;
a second application system including a second set of data;

a first server coupled to said first and second application systems;
a central repository coupled to said server and capable of integrating said
first and second sets of data to create a central repository set of data; and
wherein said first and second application systems are programmed in a first
5 format and said central repository is programmed in a second format.

30. A method in a computer network for displaying vendor information
comprising:

creating a first set of data in a first application system;
creating a second set of data in a second application system;
10 passing said first and second sets of data to a first server which is configured
to run an object broker;
passing said first and second sets of data from said first server to a central
repository; and
integrating said first and second sets of data in said central repository
15 database to form a central repository set of data.

1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		2006-2007		2007-2008		2008-2009		2009-2010		2010-2011		2011-2012		2012-2013		2013-2014		2014-2015		2015-2016		2016-2017		2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2023-2024		2024-2025		2025-2026		2026-2027		2027-2028		2028-2029		2029-2030		2030-2031		2031-2032		2032-2033		2033-2034		2034-2035		2035-2036		2036-2037		2037-2038		2038-2039		2039-2040		2040-2041		2041-2042		2042-2043		2043-2044		2044-2045		2045-2046		2046-2047		2047-2048		2048-2049		2049-2050		2050-2051		2051-2052		2052-2053		2053-2054		2054-2055		2055-2056		2056-2057		2057-2058		2058-2059		2059-2060		2060-2061		2061-2062		2062-2063		2063-2064		2064-2065		2065-2066		2066-2067		2067-2068		2068-2069		2069-2070		2070-2071		2071-2072		2072-2073		2073-2074		2074-2075		2075-2076		2076-2077		2077-2078		2078-2079		2079-2080		2080-2081		2081-2082		2082-2083		2083-2084		2084-2085		2085-2086		2086-2087		2087-2088		2088-2089		2089-2090		2090-2091		2091-2092		2092-2093		2093-2094		2094-2095		2095-2096		2096-2097		2097-2098		2098-2099		2099-2100		2100-2101		2101-2102		2102-2103		2103-2104		2104-2105		2105-2106		2106-2107		2107-2108		2108-2109		2109-2110		2110-2111		2111-2112		2112-2113		2113-2114		2114-2115		2115-2116		2116-2117		2117-2118		2118-2119		2119-2120		2120-2121		2121-2122		2122-2123		2123-2124		2124-2125		2125-2126		2126-2127		2127-2128		2128-2129		2129-2130		2130-2131		2131-2132		2132-2133		2133-2134		2134-2135		2135-2136		2136-2137		2137-2138		2138-2139		2139-2140		2140-2141		2141-2142		2142-2143		2143-2144		2144-2145		2145-2146		2146-2147		2147-2148		2148-2149		2149-2150		2150-2151		2151-2152		2152-2153		2153-2154		2154-2155		2155-2156		2156-2157		2157-2158		2158-2159		2159-2160		2160-2161		2161-2162		2162-2163		2163-2164		2164-2165		2165-2166		2166-2167		2167-2168		2168-2169		2169-2170		2170-2171		2171-2172		2172-2173		2173-2174		2174-2175		2175-2176		2176-2177		2177-2178		2178-2179		2179-2180		2180-2181		2181-2182		2182-2183		2183-2184		2184-2185		2185-2186		2186-2187		2187-2188		2188-2189		2189-2190		2190-2191		2191-2192		2192-2193		2193-2194		2194-2195		2195-2196		2196-2197		2197-2198		2198-2199		2199-2200		2200-2201		2201-2202		2202-2203		2203-2204		2204-2205		2205-2206		2206-2207		2207-2208		2208-2209		2209-2210		2210-2211		2211-2212		2212-2213		2213-2214		2214-2215		2215-2216		2216-2217		2217-2218		2218-2219		2219-2220		2220-2221		2221-2222		2222-2223		2223-2224	
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1997-1998		1998-1999		1999-2000		2000-2001		2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		2006-2007		2007-2008		2008-2009		2009-2010		2010-2011		2011-2012		2012-2013		2013-2014		2014-2015		2015-2016		2016-2017		2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2023-2024		2024-2025		2025-2026		2026-2027		2027-2028		2028-2029		2029-2030		2030-2031		2031-2032		2032-2033		2033-2034		2034-2035		2035-2036		2036-2037		2037-2038		2038-2039		2039-2040		2040-2041		2041-2042		2042-2043		2043-2044		2044-2045		2045-2046		2046-2047		2047-2048		2048-2049		2049-2050		2050-2051		2051-2052		2052-2053		2053-2054		2054-2055		2055-2056		2056-2057		2057-2058		2058-2059		2059-2060		2060-2061		2061-2062		2062-2063		2063-2064		2064-2065		2065-2066		2066-2067		2067-2068		2068-2069		2069-2070		2070-2071		2071-2072		2072-2073		2073-2074		2074-2075		2075-2076		2076-2077		2077-2078		2078-2079		2079-2080		2080-2081		2081-2082		2082-2083		2083-2084		2084-2085		2085-2086		2086-2087		2087-2088		2088-2089		2089-2090		2090-2091		2091-2092		2092-2093		2093-2094		2094-2095		2095-2096		2096-2097		2097-2098		2098-2099		2099-2100		2100-2101		2101-2102		2102-2103		2103-2104		2104-2105		2105-2106		2106-2107		2107-2108		2108-2109		2109-2110		2110-2111		2111-2112		2112-2113		2113-2114		2114-2115		2115-2116		2116-2117		2117-2118		2118-2119		2119-2120		2120-2121		2121-2122		2122-2123		2123-2124		2124-2125		2125-2126		2126-2127		2127-2128		2128-2129		2129-2130		2130-2131		2131-2132		2132-2133		2133-2134		2134-2135		2135-2136		2136-2137		2137-2138		2138-2139		2139-2140		2140-2141		2141-2142		2142-2143		2143-2144		2144-2145		2145-2146		2146-2147		2147-2148		2148-2149		2149-2150		2150-2151		2151-2152		2152-2153		2153-2154		2154-2155		2155-2156		2156-2157		2157-2158		2158-2159		2159-2160		2160-2161		2161-2162		2162-2163		2163-2164		2164-2165		2165-2166		2166-2167		2167-2168		2168-2169		2169-2170		2170-2171		2171-2172		2172-2173		2173-2174		2174-2175		2175-2176		2176-2177		2177-2178		2178-2179		2179-2180		2180-2181		2181-2182		2182-2183		2183-2184		2184-2185		2185-2186		2186-2187		2187-2188		2188-2189		2189-2190		2190-2191		2191-2192		2192-2193		2193-2194		2194-2195		2195-2196		2196-2197		2197-2198		2198-2199		2199-2200		2200-2201		2201-2202		2202-2203		2203-2204		2204-2205		2205-2206		2206-2207		2207-2208		2208-2209		2209-2210		2210-2211		2211-2212		2212-2213		2213-2214		2214-2215		2215-2216		2216-2217		2217-2218		2218-2219		2219-2220		2220-2221		2221-2222		2222-2223		2223-2224	
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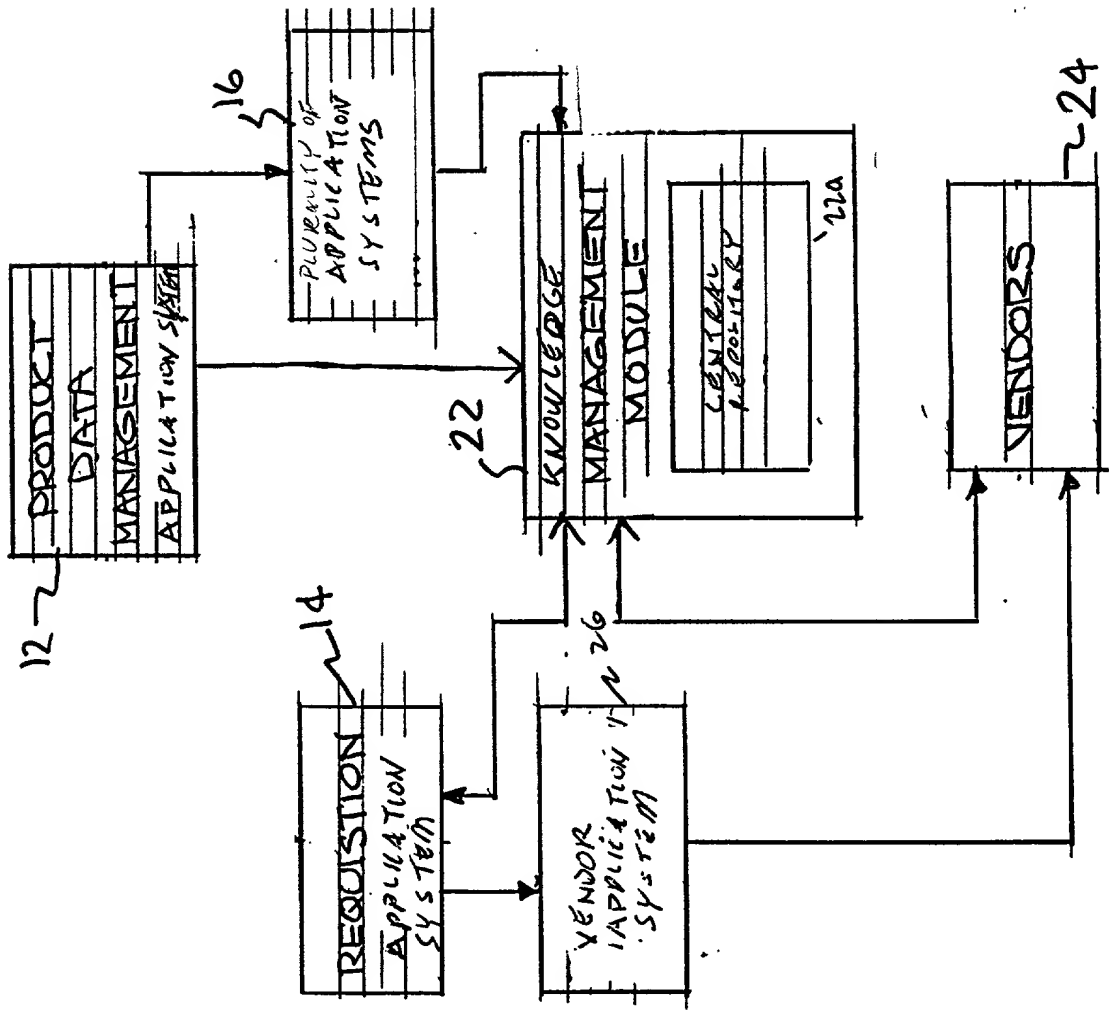


FIG. 1

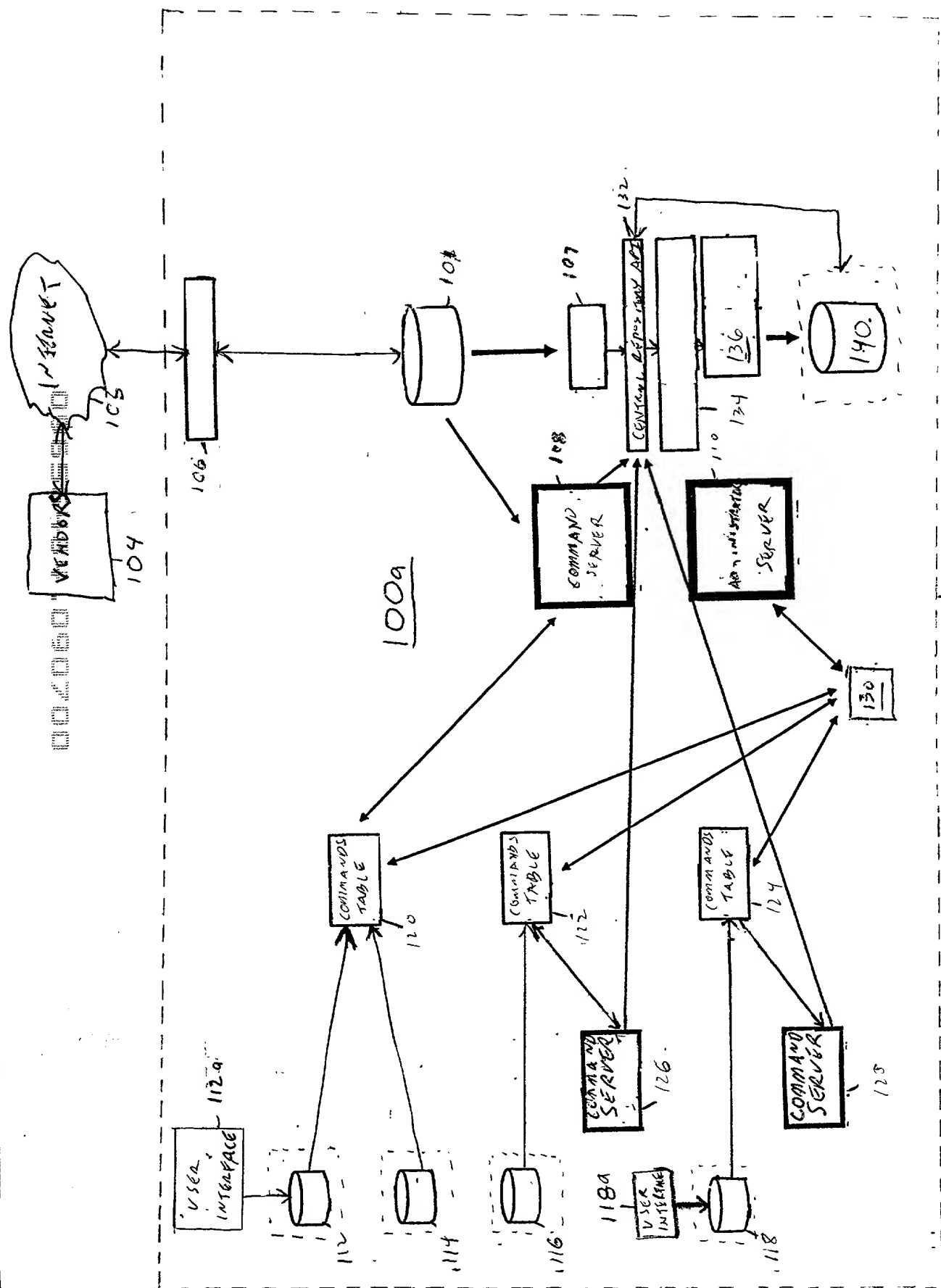


Figure 7

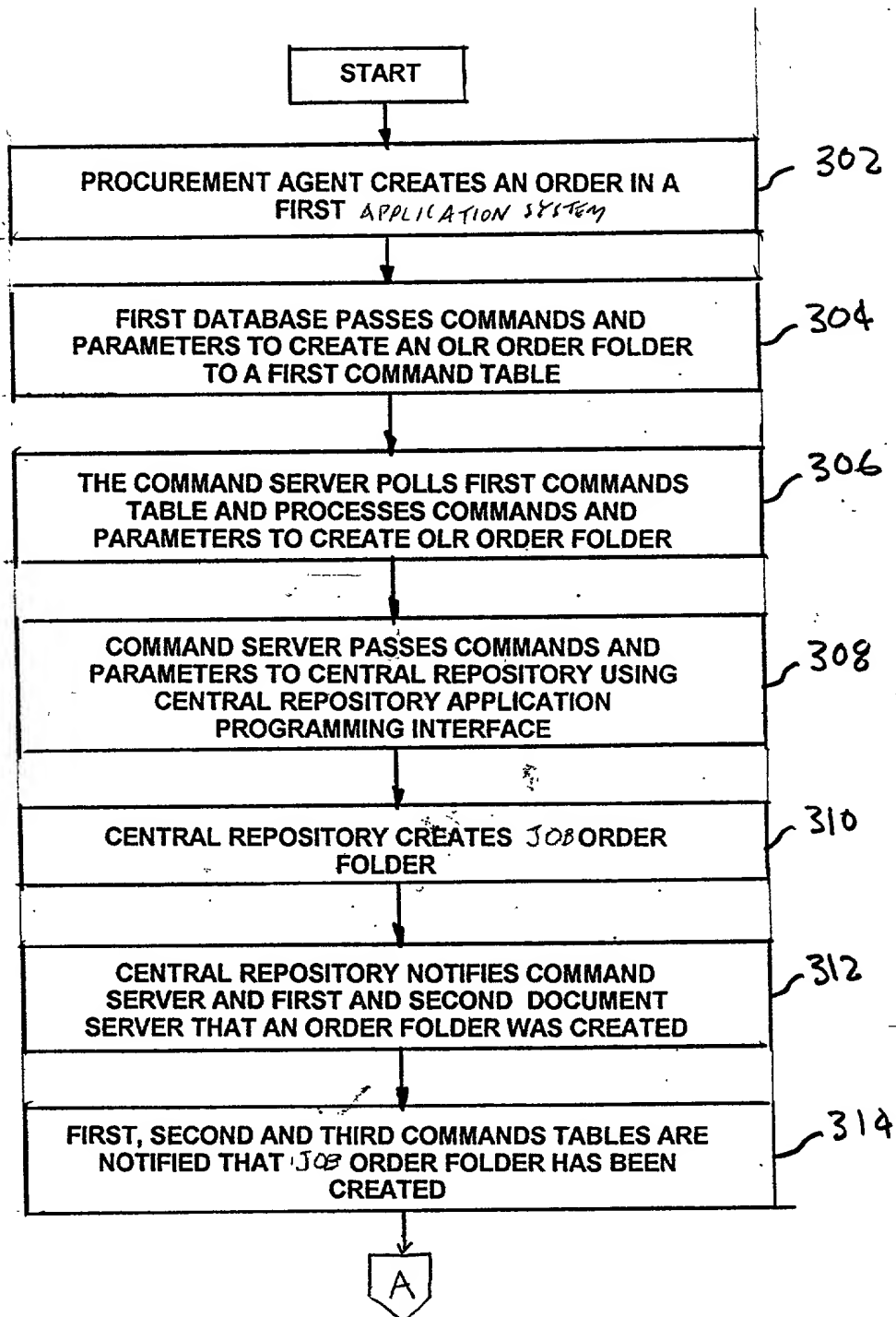


FIG. 3A


```

graph TD
    B[B] --> 328[A FOURTH DATABASE PASSES ENTERPRISE  
RELATIONSHIP MANAGEMENT INFORMATION TO THE  
THIRD COMMANDS TABLE]
    328 --> 330[THE SECOND DOCUMENT SERVER POLLS THE THIRD  
COMMANDS TABLE AND PASSES THE PRODUCT  
DATA MANAGEMENT INFORMATION TO THE  
CENTRAL REPOSITORY]
    330 --> 332[CENTRAL REPOSITORY INTEGRATES THE  
PRODUCT DATA MANAGEMENT  
INFORMATION INTO THE JOB ORDER FOLDER]
    332 --> 334[CENTRAL REPOSITORY CREATES URLS TO A BID  
FORM AND JOBORDER FOLDER AND PLACES URLS  
ON WEB PAGE SERVER]
    334 --> END[END]

```

FIG. 3C

COMBINED DECLARATION AND POWER OF ATTORNEY

- ☒ Declaration submitted
with Initial Filing
- ☐ Declaration submitted
after Initial Filing (surcharge
(37 CFR 1.16(e)) required)

Attorney Docket: IL-10518
Applicant: Francine A. Alford et al.
Serial No.:
Filing Date:

As a below named inventor(s), I (we) hereby declare that:

My (Our) residence, post office address and citizenship(s) are as stated below next to my (our) name(s).

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: A METHOD AND SYSTEM OF INTEGRATING INFORMATION FROM MULTIPLE SOURCES
the specification of which (check one)

X is attached hereto _____ was filed on _____ as United States Application Number or PCT International Application Number _____ and was amended on _____ (if applicable).

I (We) hereby state that I (we) have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I (We) acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I (We) hereby claim foreign priority benefits under 35, U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority Not Claimed

(Application Number) (Country) (Foreign Filing Date)



(Application Number) (Country) (Foreign Filing Date)



I (We) hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below:

60/153,099

9/9/99

Application Serial No.

Filing Date

I (We) hereby claim the benefit under 35 U.S.C. 120 of any United States applications(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

Application Serial No.	Filing Date	Status
------------------------	-------------	--------

POWER OF ATTORNEY: As the named inventor(s), I (we) hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Names	Registration No.
Christopher J. Horgan	40,394
Alan H. Thompson	29,981
L.E. Carnahan	20,555
Eddie E. Scott	25,220
<u>Direct Correspondence To:</u>	<u>Direct Telephone Calls To:</u>
Christopher J. Horgan	(Name and Telephone Numbers)
Patent Attorney	Christopher J. Horgan
Lawrence Livermore National Laboratory	(925) 423-8554
P.O. Box 808 - L-703	
Livermore, California 94551	

I (We) hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FRANCINE A. ALFORD	<i>Francine Alford</i>
Full Name of Inventor	Signature
LIVERMORE, CALIFORNIA	8/29/00
Residence (City, State or Foreign Country)	Date
2455 Wood Hollow Dr 657 JEANNIE WAY, LIVERMORE, CALIFORNIA 94550	USA
Postal Address (Street, City, State, Zip Code)	Citizenship
XX	
DAVID L. BRINKERHOFF	SEE PAGE 3
Full Name of Inventor	Signature
ANTIOCH, CALIFORNIA	
Residence (City, State or Foreign Country)	Date
4315 HILLCREST AVENUE, ANTIOCH, CALIFORNIA 94509	USA
Postal Address (Street, City, State, Zip Code)	Citizenship
XX	

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LIVERMORE, CALIFORNIA	8/29/00
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2455 Wood Hollow Dr 657 JEANNIE WAY, LIVERMORE, CALIFORNIA 94550	USA
Postal Address (Street, City, State, Zip Code)	Citizenship
XX	
DAVID L. BRINKERHOFF	<i>David L. Brinkerhoff</i>
Full Name of Inventor	Signature
ANTIOCH, CALIFORNIA	9/1/00
Residence (City, State or Foreign Country)	Date
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Postal Address (Street, City, State, Zip Code)	Citizenship
XX	